

Claims

What is claimed:

1 1. A method for wirelessly transmitting data between a base transceiver station and a
2 subscriber unit, the base transceiver station comprising a plurality of transmit antennae,
3 the method comprising:

4 generating control signals to configure the base transceiver station to transmit
5 selected data streams to a corresponding subscriber unit on an assigned channel of a
6 multiple access protocol;

7 transmitting in response to the control signals and in a spatially separate fashion,
8 the selected data streams on the assigned channel of the multiple access protocol; and
9 utilizing co-located electric dipole and magnetic dipole antennae at the subscriber
10 unit to receive the selected data streams.

1 2. The method of claim 1 wherein each electric dipole antennae has a different
2 polarization.

1 3. The method of claim 1 wherein each magnetic dipole antenna has a different
2 polarization.

1 4. The method of claim 1 wherein the electric dipole antennae comprise 3 electric
2 dipole antennae and the magnetic dipole antennae comprise 3 magnetic dipole antennae.

1 6. The method of claim 5 wherein the data streams are transmitted via a scattering
2 channel.

1 7. The method of claim 1 wherein the subscriber unit comprises a palm sized device.

1 8. The method of claim 7 wherein the electric dipole antennae comprise 3 electric
2 dipole antennae and the magnetic dipole antennae comprise 3 magnetic dipole antennae.

1 9. The method of claim 8 wherein the 3 electric dipole antennae have 3 different
2 polarizations and the 3 magnetic dipole antennae have 3 different polarizations.

1 10. The method of claim 9 wherein the data streams are transmitted via a scattering
2 channel.

1 11. A method for wirelessly receiving data at a base transceiver station from a
2 subscriber unit, the base transceiver station comprising a plurality of antennae, the
3 method comprising:
4 utilizing co-located electric dipole antennae at the subscriber unit to transmit
5 selected data streams on an assigned channel of a multiple access protocol;

6 generating control signals to configure the base transceiver station to receive the
7 selected data streams from the subscriber unit on the assigned channel of a multiple
8 access protocol; and
9 receiving in response to the control signals the selected data streams on the
10 assigned channel of the multiple access protocol.

1 12. The method of claim 1 wherein each electric dipole antennae has a different
2 polarization.

1 13. The method of claim 12 wherein the electric dipole antennae comprise 3 electric
2 dipole antennae.

1 14. The method of claim 13 wherein the 3 electric dipole antennae have 3 different
2 polarizations.

1 15. The method of claim 14 wherein the data streams are transmitted via a scattering
2 channel.

1 16. The method of claim 11 wherein the subscriber unit comprises a palm sized
2 device.

1 17. The method of claim 16 wherein the electric dipole antennae comprise 3 electric
2 dipole antennae.

1 18. The method of claim 17 wherein the 3 electric dipole antennae have 3 different
2 polarizations.

1 19. The method of claim 18 wherein the data streams are transmitted via a scattering
2 channel.

1 20. A system for wirelessly transmitting data between a base transceiver station and a
2 subscriber unit, the base transceiver station comprising a plurality of transmit antennae,
3 the system comprising:

4 means for generating control signals to configure the base transceiver station to
5 transmit selected data streams to a corresponding subscriber unit on an assigned channel
6 of a multiple access protocol;

7 means for transmitting in response to the control signals and in a spatially
8 separate fashion, the selected data streams on the assigned channel of the multiple access
9 protocol; and

10 means for utilizing co-located electric dipole and magnetic dipole antennae at the
11 subscriber unit to receive the selected data streams.

1 21. The system of claim 20 wherein each electric dipole antennae has a different
2 polarization.

1 22. The system of claim 20 wherein each magnetic dipole antenna has a different
2 polarization.

[illegible]

1 29. The system of claim 28 wherein the data streams are transmitted via a scattering
2 channel.

1 30. A system for wirelessly receiving data at a base transceiver station from a
2 subscriber unit, the base transceiver station comprising a plurality of antennae, the system
3 comprising:

4 means for utilizing co-located electric dipole antennae at the subscriber unit to
5 transmit selected data streams on an assigned channel of a multiple access protocol;

6 means for generating control signals to configure the base transceiver station to
7 receive the selected data streams from the subscriber unit on the assigned channel of a
8 multiple access protocol; and

9 means for receiving in response to the control signals the selected data streams on
10 the assigned channel of the multiple access protocol.

1 31. The system of claim 30 wherein each electric dipole antennae has a different
2 polarization.

1 32. The system of claim 30 wherein the electric dipole antennae comprise 3 electric
2 dipole antennae.

1 33. The system of claim 32 wherein the 3 electric dipole antennae have 3 different
2 polarizations.

1 34. The system of claim 33 wherein the data streams are transmitted via a scattering
2 channel.

1 35. The system of claim 30 wherein the subscriber unit comprises a palm sized
2 device.

1 36. The system of claim 35 wherein the electric dipole antennae comprise 3 electric
2 dipole antennae.

1 37. The system of claim 36 wherein the 3 electric dipole antennae have 3 different
2 polarizations.

1 38. The system of claim 37 wherein the data streams are transmitted via a scattering
2 channel.

1 39. A method for wirelessly transmitting data between a base transceiver station and a
2 subscriber unit, the base transceiver station comprising a plurality of transmit antennae,
3 the method comprising:

4 generating control signals to configure the base transceiver station to transmit
5 selected data streams to a corresponding subscriber unit on an assigned channel of a
6 multiple access protocol, wherein the assigned channel comprises a scattering channel;

7 transmitting in response to the control signals and in a spatially separate fashion,
8 the selected data streams on the assigned channel of the multiple access protocol; and

9 utilizing 6 co-located antennae at the subscriber unit to receive the selected data

10 streams wherein the subscriber unit comprises a palm-sized device and the 6 co-located

11 antennae comprise 3 electric dipole antennae and 3 magnetic dipole antennae wherein the

12 3 electric dipole antennae have 3 different polarizations and the 3 magnetic dipole
13 antennae have 3 different polarizations.

1 40. A method for wirelessly receiving data at a base transceiver station from a
2 subscriber unit, the base transceiver station comprising a plurality of antennae, the
3 method comprising:
4 utilizing 3 co-located antennae at the subscriber unit to transmit selected data
5 streams on an assigned channel of a multiple access protocol, wherein the assigned
6 channel comprises a scattering channel, wherein the subscriber unit comprises a palm-
7 sized device and the 3 co-located antennae comprise 3 electric dipole antennae, wherein
8 the 3 electric dipole antennae have 3 different polarizations;
9 generating control signals to configure the base transceiver station to receive the
10 selected data streams from the subscriber unit on the assigned channel of a multiple
11 access protocol; and
12 receiving in response to the control signals the selected data streams on the
13 assigned channel of the multiple access protocol.

1 41. A system for wirelessly transmitting data between a base transceiver station and a
2 subscriber unit, the base transceiver station comprising a plurality of transmit antennae,
3 the system comprising:
4 means for generating control signals to configure the base transceiver station to
5 transmit selected data streams to a corresponding subscriber unit on an assigned channel

6 of a multiple access protocol, wherein the assigned channel comprises a scattering
7 channel;

8 means for transmitting in response to the control signals and in a spatially
9 separate fashion, the selected data streams on the assigned channel of the multiple access
10 protocol; and

11 means for utilizing 6 co-located antennae at the subscriber unit to receive the
12 selected data streams wherein the subscriber unit comprises a palm-sized device and the 6
13 co-located antennae comprise 3 electric dipole antennae and 3 magnetic dipole antennae
14 wherein the 3 electric dipole antennae have 3 different polarizations and the 3 magnetic
15 dipole antennae have 3 different polarizations.

1 42. A system for wirelessly receiving data at a base transceiver station from a
2 subscriber unit, the base transceiver station comprising a plurality of antennae, the system
3 comprising:

4 means for utilizing 3 co-located antennae at the subscriber unit to transmit
5 selected data streams on an assigned channel of a multiple access protocol, wherein the
6 assigned channel comprises a scattering channel, wherein the subscriber unit comprises a
7 palm-sized device and the 3 co-located antennae comprise 3 electric dipole antennae,
8 wherein the 3 electric dipole antennae have 3 different polarizations;

9 means for generating control signals to configure the base transceiver station to
10 receive the selected data streams from the subscriber unit on the assigned channel of a
11 multiple access protocol; and

- 12 means for receiving in response to the control signals the selected data streams on
- 13 the assigned channel of the multiple access protocol.

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